What is claimed is:

1. An apparatus for forming a thin film, wherein a film-forming gas is supplied from a gas supplying device to a vacuum container which can be evacuated by an exhausting device to reduce gas pressure in the container, an electric power is applied from a power applying device to the film-forming gas to produce plasma from the gas in which a thin film is formed on an article to be film-covered disposed in the vacuum container, the gas supplying device including a gas supply member having a gas supply surface portion, the gas supply surface portion being opposed to a film-forming surface of the article to be film-covered disposed in the vacuum container, the power applying device including a power applying electrode disposed in the vacuum container, the gas supply member having a plurality of gas supply holes dispersedly formed at the gas supply surface portion, the power applying electrode being disposed in a surrounding region around a space between the article to be film-covered disposed in the vacuum container and the gas supply surface portion of the gas supply member opposed to the article.

2. An apparatus according to claim 1, wherein the exhausting device discharges a gas from a region of vicinity of periphery portion of the gas supply member.

3. An apparatus according to claim 1, wherein the power applying device includes 4 divided electrodes as the power applying electrode for applying the electric power and high frequency power sources each connected to the divided electrodes, respectively, each of the divided electrodes is in a shape of a bent plate, the divided electrodes being disposed in a quadrilateral shape in a plan view surrounding the space between the article to be film-covered in the vacuum container and the gas supply surface portion of the gas supply member opposed to the article.

4. An apparatus according to claim 1, wherein distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and area of opening of the holes are determined in such a way that amount of gas blow from the gas supply surface portion is varied from a peripheral region to a central region of the gas supply surface portion.

5. A method for forming a thin film on an article to be covered with the film, using the apparatus as claimed in claim 1, wherein the thin film is formed while retaining gas pressure in the space at 10^{-2} Pa to 10 Pa during formation of the film.

6. A method according to claim 5, wherein the

exhausting device is of the type wherein a gas is discharged from a region of vicinity of periphery portion of the gas supply member.

7. A method according to claim 5, wherein distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and area of opening of the holes are determined in such a way that amount of gas blow from the gas supply surface portion is varied from a peripheral region to a central region of the gas supply surface portion.

8. A method for forming a thin film on an article to be covered with the film, using the apparatus as claimed in claim 1, wherein at least silane (SiH_4) gas and hydrogen (H_2) gas are used as the film-forming gas, wherein distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and the area of opening of the holes are determined in such a way that amount of gas blow from the gas supply surface portion is increased from a peripheral region to a central region of the gas supply surface portion and wherein a crystalline silicon film is formed on the article while retaining gas pressure in the space at 10^{-2} Pa to 10 Pa during formation of the film.

9. A method according to claim 8, wherein the exhausting device is of the type wherein a gas is

discharged from a region of vicinity of periphery portion of the gas supply member.

10. A method for forming a thin film on an article to be covered with the film, using the apparatus as claimed in claim 1, wherein at least silane (SiH_4) gas and oxygen (O_2) gas are used as the film-forming gas, wherein the gas supplying device is of the type wherein the gases are introduced in a separated state into the gas supply surface portion of the gas supply member, distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and area of opening of the holes are determined in such a way that amount of gas blow from the gas supply surface portion is decreased from a peripheral region to a central region of the gas supply surface portion and wherein a silicon oxide film is formed on the article while retaining gas pressure in the space at 10^{-2} Pa to 10 Pa during the formation of the film.

11. A method according to claim 10, wherein the exhausting device is of the type wherein a gas is discharged from a region of vicinity of periphery portion of the gas supply member.

12. A method for forming a thin film on an article to be covered with the film, using the apparatus as claimed in claim 1, wherein at least silane (SiH_4) gas

and ammonia (NH_3) gas are used as the film-forming gas, wherein distribution density of the gas supply holes in the gas supply surface portion of the gas supply member and area of opening of the holes are determined in such a way that amount of gas blow from the gas supply surface portion is decreased from a peripheral region to a central region of the gas supply surface portion and wherein a silicon nitride film is formed on the article while retaining gas pressure in the space at 10^{-2} Pa to 10 Pa during formation of the film.

13. A method according to claim 12, wherein the exhausting device is of the type wherein a gas is discharged from a region of vicinity of periphery portion of the gas supply member.